



THE CORNELL ENGINEER

THE ENGINEER

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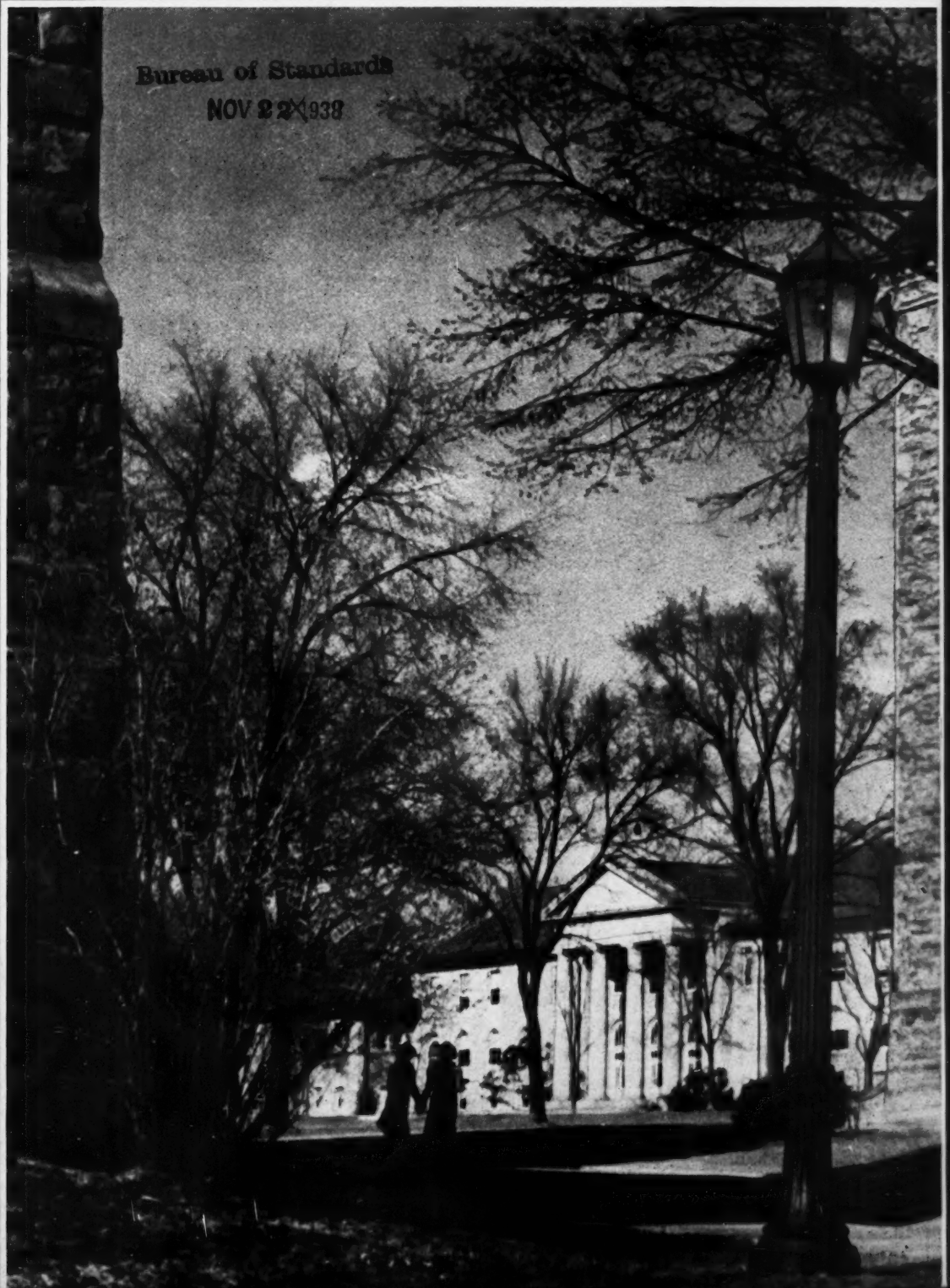
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Our Authors . . .

MAXWELL M. UPSON '99 M.E., has been president of the Raymond Concrete Pile Co. fo New York since 1907. He obtained his M.E. at Cornell in '99 after receiving his A.B. at the University of North Dakota. He has been President and Member of the Board of Directors of the American Concrete Institute; is member of A.S.C.E., A.S.M.E., A.S.T.M., has been treasurer of Cornell University; is member of the Engineers Club; in addition to many other social, honorary, and philanthropic organizations. Part I of "The Individual Corporation" was published in the October 1938 CORNELL ENGINEER.

STERLING LINES '98, a consulting engineer in Los Angeles, had been called in to design a machine for placing a plastic cover around metal pipes without interruption of service. He gives us the story of his design work in a familiar vein in "Specialized Design."

BEACH BARRETT '40 M.E. In addition to his article on Sports, Beach is responsible for the photographic work for the cover, and the officers' pictures on pages 10 and 11. An able editorial staffman, he was prevented from doing justice to Cornell's sports lore by the obvious space limitations for this type of article in a semi-technical magazine. The board would like to know how readers react to this kind of article.

Announcing Competitions

Freshmen, Sophomores and Juniors in good standing in the College of Engineering are invited to enter competitions for membership on the Staffs and Boards of the CORNELL ENGINEER, opened at the time of this issue. Freshmen to compete for membership on the Freshman Staff in either Editorial or Business departments, Sophomores to compete for one vacancy on the Editorial staff and five vacancies on the business staff, and Juniors to compete for one vacancy on the Editorial Board and two vacancies on the Business Board.

Work on the CORNELL ENGINEER leads to academic credit in the College of Engineering, offices on the Senior Board, and opportunity for financial remuneration through successful magazine operation. The Senior offices in the Editorial Department are: Editor-in-Chief, Managing Editor, and Associate Editor; in the Business Department they are: Business Manager, Advertising Manager, and Circulation Manager.

Next Month

Now for a word about the December issue. There is much of interest to us all that was discussed at the meeting of the Cornell Society of Engineers in New York on November 10th. Progress in the Engineering College was the theme and reports of that meeting will be conscientiously arranged for that issue.

Seniors will want to see their class pictures now planned for December publication.

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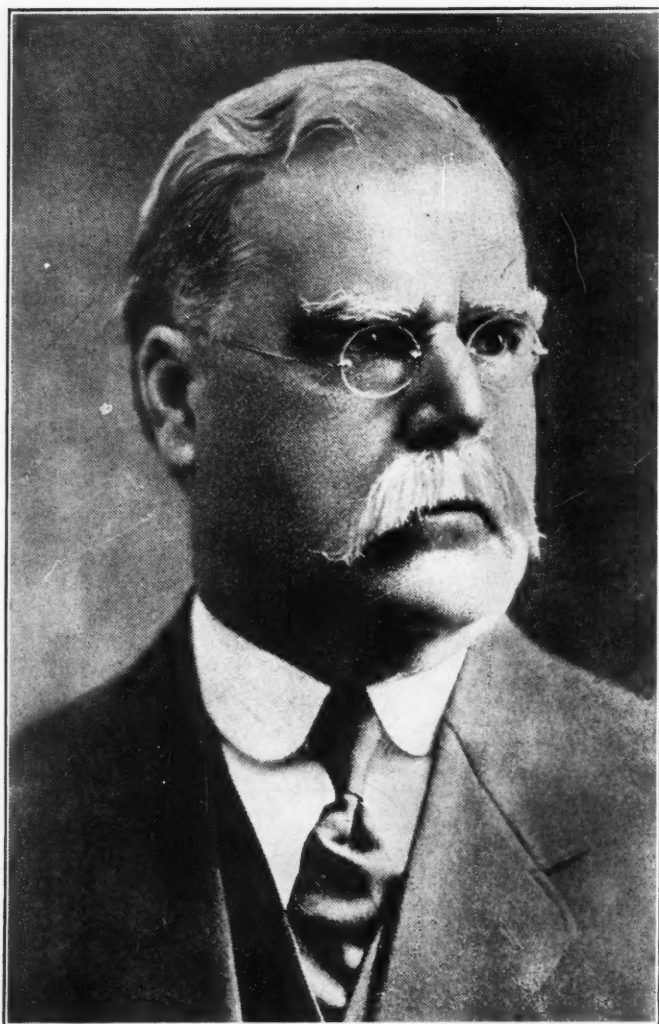
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When the older alumni talk of Cornell and Crew, it's "Pop" Courtney they speak of. And small wonder when one looks at those early records.



A HISTORY OF SPORTS AT CORNELL

By BEACH BARRETT, M.E. '40

A HISTORY of sports at Cornell must of necessity go back to the founding of the University, for, as one of her Alumni has put it, "Cornell had had a baseball team since the first nine men entered."

The original sports on the hill were baseball, foot races, lawn tennis and football, some of them organized as early as 1869. Intercollegiate competition was near to inauguration back in 1873, when football teams had forty men on a side. In that year, a challenge came from the University of Michigan for a game at Cleveland. Cornell picked its team and started practice, but President White "refused to let 40 men go 400 miles to agitate a bag of wind." Intercollegiate competition opened in November of 1887 when the Cornell football team lost to Union 24-0. They also lost their second game to Lehigh at Elmira on Thanksgiving Day.

Cornell scored her first grid victory in 1888, with Union the loser, 30 to 4. The first Cornell team looked forward to meeting Lehigh at Elmira on Thanksgiving, with a second meeting in 1888, but in 1889 Lafayette was played at Syracuse and was defeated 24-0. There followed a Thanksgiving Day series with Michigan at Chicago and Detroit, and Lehigh visited Percy Field in 1894. The policy of playing Pennsylvania at Philadelphia on Thanksgiving Day began in 1895 and has continued uninterrupted except for the World War.

In football's early years at Cornell, the commercial angle first reared its head. In 1890, the team, captain-



The Crescent

ed by Edwin Yawger, toured the East, playing a six game schedule consisting of Union, Williams, Harvard, Amherst, Trinity, and Wesleyan, all in one week. That was back in the good old days that the old grads love to talk about, when a football team could play as many games in a week as the team of today will play in two months. The next year the team went west, tackling Michigan, the Detroit A.C., the University Club at Detroit, and then Michigan again.

Such tours, and the policy of "having grand public contests before thousands all over the country attracting professional roughs with their betting and drinking to the grand show" were later discouraged in colleges.

The coaching system of the football team has seen many changes with the growth of the sport. In 1901 the Athletic Commission brought out an edict that the team's captain should act as head coach and that three or more graduate coaches should be picked to assist him. This system was maintained until 1912, and among the coach-captains under it were Henry Schoelkopf and Daniel A. Reed, who, as head coach in 1912, had 21 assistants under him.

In 1912 Dr. Sharpe was made varsity coach, and was succeeded by John (Speedy) Rush in 1919. In 1920, "Gloomy" Gil Dobie came to Cornell as head coach. He started his regime with a flourish, and after losing only two games in 1920, his 1921, '22, and '23 teams rolled up 24 straight wins. This was extended to 26 until Williams stopped the Big Red in 1924.



JOHN MOAKLEY
Now starting his 39th year of successful
track coaching at Cornell.

Now there is a new regime in Cornell football under Carl Snavely, brought here from the University of North Carolina in 1936, shortly after Cornell's athletic department was reorganized under James Lynah as director.

Crew was one of the original sports, and good crews have long been a feature of Cornell athletics. When the football team has an off year, the undergraduates can be heard to say, "Well, we still have our crew", and vice versa.

Cornell's first shell took the water in 1871. Crew competition opened the year after when the Cornellians met Pop Courtney's Union Springs crew in 1872 and participated in the regatta of the Intercollegiate Rowing Association at Springfield. The sport gained popularity in 1875 when the freshman and varsity crews won the Saratoga Regatta.

The father of rowing was John Ostrom, but the man remembered whenever Cornell rowing is mentioned is Charles E. (Pop) Courtney, who came up

from Union Springs in 1885 to spend 33 years coaching Cornell crews.

Cornell was prominent in the rowing world by 1888, efforts of those hardy sweep swingers having hoisted the Red and White colors above all others. The oarsmen were just beginning to feel the Courtney influence which was to be with Cornell until 1920. Over those 33 years, the Cornell crews won 98 out of 146 races. Out of 24 races in the association, the varsity won 14 and took second in six. Courtney's oarsman scored seven clean sweeps in the annual regatta of the IRA, a feat never accomplished even once by any other university up to that time.

All Poughkeepsie records prior to 1920 were held by Cornell, and the freshman two mile record still stands at 9:07½. That was set in 1909, on what was probably Cornell's biggest day on the Hudson. Cornell took the lead at the start of every race, and the Red and White colors were never headed once. Since that day, the Cornell crews have had their share of glory, but never have they equaled that record.

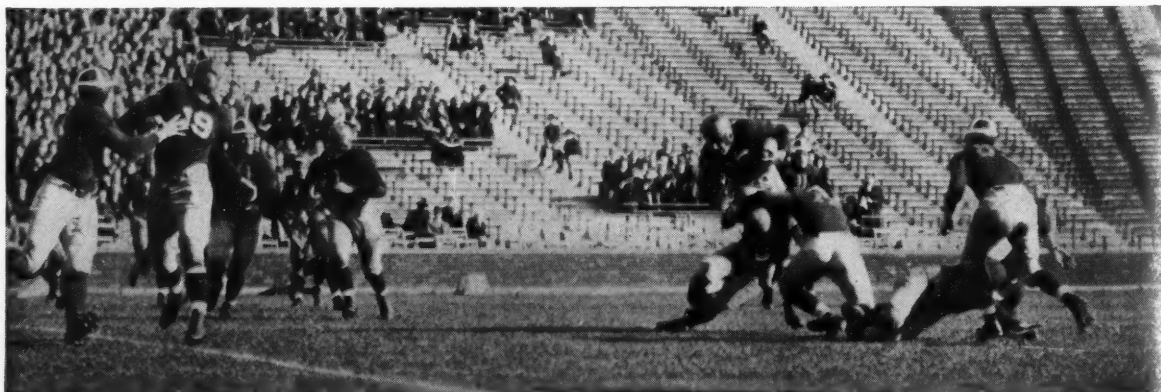
Jack Moakley is the byword of Cornell track. Although track games have been in vogue from the University's early childhood, they were not put on the high road until Moakley became coach in the fall of 1899.

Mr. Moakley is now in his 39th year of coaching in Big Red athletics. During his years at Cornell, he has built up championship runners and championship coaching methods. He has sent several men to the Olympics, and he coached the American Olympic team in 1920. His teams have won ten IC4A championships in track, three in indoor track, and seven in cross country.

Only last autumn, Coach Moakley had the pleasure of seeing Howard (Wreck) Welch of Trumansburg crowned intercollegiate cross country champion. He is the ninth Cornellian to win since 1899.

Another of the old time sports at Cornell was lawn tennis. The Lawn Tennis Club was organized in 1879, and three years later, the first college tournament was held. In 1886 Cornell was admitted to the Intercollegiate Lawn Tennis Association.

(Continued on page 25)



Specialized Design

Of A Machine For Application Of Plastic Encasement To Pipe

By STERLING C. LINES, '98

Some years ago my attention was called to the very great economic loss occasioned by corrosion of metals in contact with the ground, with particular reference to the heavy burden sustained by our oil, gas and water industries in maintenance of buried pipe lines. At about this time an engineer who had to do with pipe line operation enlisted my interest in devising some method or machine through the use of which the fine qualities of cement and lime might be taken advantage of in protection of steel pipe in contact with the ground.

After a rather extended study, aided by the work of the U. S. Bureau of Standards in cooperation with national petroleum and gas interests, I undertook a schedule of cut and try in design of a machine and process for application of plastic material as pipe encasement, which could meet the following general requirements:

- The concrete jacket of cement or other suitable plastic material to be applied without forms to the pipe in the trench, undisturbed, and applied without interruption of service;

- The machine to be light and easily portable, readily placed upon or removed from the pipe, to be capable of repair in the country blacksmith shop, to roll truly and freely along and upon the pipe at any ordinary angle or curve of short radius;

- Providing a power-driven means of progressively rubbing the plastic into position under pressure sufficient to expel residual or vagrant moisture or air from between the concrete and the pipe surface;

- A system of handling the pipe line in the course of machine operation with no injury either to the pipe or the encasement;

- Means of incorporating steel wire reinforcement in the encasement;

- Operating at such speed or rate of application as needed to meet relatively low unit costs.

Choice of design pointed quite naturally to the extruding action of the pug mill, in the principle of the



The encasement machine at a moment of rest in the course of encasing a sixteen inch riveted steel pipe under water pressure of seventy pounds.

spiral screw. Hence the first trial machine operated through the action of a number of spiral leaves mounted upon the surface of a cone which was caused to revolve about the pipe concentrically, a housing enclosing the cone and spiral. A feeding hopper was opened upon the upper surface of the housing. In operation, concrete fed upon the cone was immediately forced by the revolving spirals toward the small end of the cone where it contacted the pipe. As the machine backed away from the thrust of this feeding and screwing action it left a smooth coating, which emerged from between the housing and the pipe surface, tightly scored to the pipe surface. In design of cone it was thought that the concrete would be subjected to increasing pressure as it moved toward the smaller end, to emerge upon the pipe surface at maximum pressure. It was found however that friction of flow increased in about the same ratio, with no net gain.

There developed, however, a very important reason why this design of cone and spiral could not meet our rigid requirement, namely, that there was no practicable way to prevent the concrete from escaping backward along the pipe at the point where it first contacted the pipe, where the greatest rubbing pressure was desired. Since there had to be clearance between the pipe surface and the small end of the cone of at least one half inch in width it became necessary to seal this area by means of shoes attached to the under side of the cone and riding the pipe surface as they revolved. So long as these shoes were in proper adjustment and the concrete remained in a plastic state, this arrangement worked fairly well. Rubbing of the pipe surface was found to be objectionable in cases of application of the concrete jacket over enamel, coal tar, or other bituminous preparations. And also after the concrete had partly set, the shoes failed completely.



Concrete Jacket immediately after passage of machine, showing how pipe is supported. It remained in service during the operation.

This compelled a fundamental change in design which at first seemed very difficult. Happily, the solution came from the realization that in the cone design the cone surface really performed no useful service other than support of the spiral blades mounted upon it. Hence the cone was eliminated and the spirals were designed as cantilevers supported at the heavier ends which were attached to the revolving ring or drum which originally supported the cone, to be, in effect, steel fingers revolving around but not touching the pipe within the annular space formed between the pipe and the housing.

This change opened the way to a gratifying increase in efficiency of operation. Means of application of wire reinforcement was also greatly simplified and the operation became one of power troweling only. All other features or attachments designed to wrap or compact or spray were definitely discarded. If the concrete of low water-cement ratio and good plasticity failed for any reason to properly adhere, no added function or operation could afford a remedy.

Accordingly the machine became a very simple mechanism, composed of:

- (a) a small gas engine mounted upon a light rectangular frame supported by dollies which ride the pipe;
- (b) a ring or drum mounted concentrically within the frame and driven by the engine through a clutch;
- (c) spiral cantilever lugs or fingers encompassing but not touching the pipe, with heavier ends attached to the drum.
- (d) a housing enclosing the steel fingers, with feeding hopper opening upon its upper surface;
- (e) suitable counterweights for maintaining upright position on pipe.

In operation, after the pipe line is uncovered and placed upon skids to allow a few inches clearance, a starting ring is bolted around the pipe at the starting point. The machine is then placed upon and adjusted to the pipe. It is rolled up against the starting ring so that the housing covers the ring until the ends of the

fingers touch the ring. This avoids any tendency of the concrete blanket in process of formation to be forced along the pipe surface in a slipping manner. It is a dangerous operation, but one which upon occasion can be done with success by the trained operator. The danger lies in the tendency of air to find its way between the concrete and the pipe surface, which has to be continuously guarded against.

Care must be exercised that the consistency of the concrete be held closely uniform, with the least water content possible for proper placement. This quantity varies from five to six gallons per sack of cement, depending upon percentage of fines and other mix factors. Hence the operator watches the mix closely, and each batch, as it reaches the machine moving along in the trench, is given a quick test with the bare hands, a test which it would be difficult to improve upon within the time allowed. The matter of machine versus hand testing has received all the attention its importance justifies and there remain grounds for reasonable difference of opinion as to the preference. Since the greatest density of concrete is sought, great care is taken to grade the mix, with particular attention that the sand should contain from five to ten percent of "fines" over normal concrete sand.

While successful incorporation of wire or spiral reinforcement has been achieved, no precise specification has yet been written. It is necessary, however, that such reinforcement be held in fixed position as the machine passes over it. In doing so it has a scouring action upon the pipe surface and impinges against and about the wire. Any movement or yielding will result in failure of the concrete to take the firm position necessary for tight placement.

As a novel development, use has been made of short lengths of high carbon crimped wire which is added directly to the batch as it is prepared for the concrete mixer. These wires, of from two to four inches in length, and from thirteen to fifteen gauge, in amount one percent, yield to the troweling action in such a way as to take final position circumferentially about the pipe, with overlapping of approximately thirty diameters. They thus approach in effect the strength of a continuous wire of the same gauge wrapped spirally at interval of about one inch and held close to the neutral axis of the concrete shell. The general effect is a knitting together, and a local resistance to cracking, spalling, or other separation; these qualities are of importance in rejuvenation of weakened pipe. They tie the mess so tightly that the most severe shrinkage and thermal temperature tests have not produced any apparent separation.

A gratifying result of this work has been the excellent character of the finished shell or encasement, which was not of primary consideration in devising the ma-

(Continued on page 24)



Do You Know These Men?



WILLIAM PATRICK FLANIGAN, M.E. '39

"I suppose I've spent fully half my time in extracurricular activities", states Wm. P. "Bill" Flanigan; his record during four years at Cornell seems to prove the fact.

Bill's home is in Baltimore, and it is here that he prepared for college, at Calvert Hall. At Calvert he played varsity football and ice hockey, worked on the year book staff, and was president of his class for three years.

At Cornell he has been chiefly interested in student relations, and his activities show it. Some of them are: chairman, Sophomore Smoker Committee; Freshman Advisory Committee; chairman of Red Cross drive, junior year; Interfraternity Council junior and senior years, president senior year; Student Council junior and senior years, treasurer senior year; manager of Freshman track; 150 pound football, sophomore year. In addition he has been elected to Red Key, Sphinx Head, and Kappa Tau Chi. Bill is a Phi Gam, having held the offices of secretary and treasurer there.

He has long been particularly interested in the betterment of student-faculty relations, and is at present working with President Day on the new freshman orientation program planned for next fall.

Hobbies have included amateur radio, sailing, and construction of model boats. During the summer he has spent most of his spare time in racing sailboats on the Chesapeake. Last summer, however, he worked on air conditioning with a Westinghouse servicer.

On completion of his present engineering course, Bill plans to prepare for a business course by entering the Law School.

Throughout his four years in college Bill has attempted not only to receive all the education possible, but to put something back into the University.

ALLAN BONHAM CAMPBELL, E.E. '39

Time is a matter of small concern to "Barney" Campbell, who has spent seven years in getting a thorough education. Barney's first two years of college were spent at the Deep Springs Ranch School, following which he entered Cornell as a junior in the College of Arts and Sciences, working there two years for his A.B.; not satisfied, however, with this ordinary education he proceeded to enter the School of Electrical Engineering as a sophomore, working three more years for his E.E. degree.

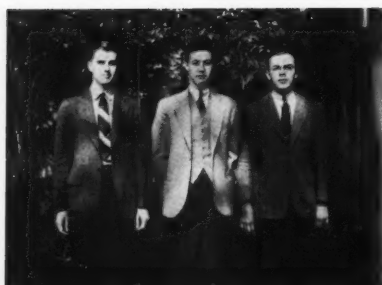
Barney is a native of St. Albans, N. Y., and prepared at Jamaica High, where he pursued a varied and active program.

Since coming to Cornell, Barney has found time for numerous activities. While in the Arts College he was active in the Debate Association, and a member of Delta Sigma Rho, honorary debate society. He also took part in the model League of Nations. In the College of Engineering this program of activity was continued. He is president of Eta Kappa Nu and recording secretary of Tau Beta Pi, as well as a member of the Delta Club. Barney is a Telluride man.

In addition to the above activities, Barney has done much to defray his college expenses. During the past two summers he has worked with the Detroit Edison Company, in both production and engineering departments. Throughout the school year at Cornell he assists Secretary Woodford Patterson in contacting speakers for the Sage Chapel services and for various lectures on the hill. It is through this work that he has made many valuable contacts.

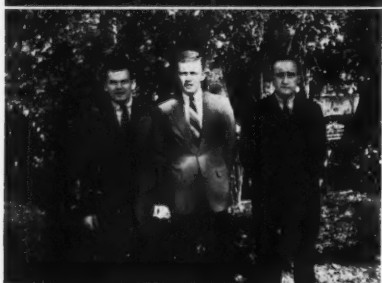
Although taking the communications option in Electrical Engineering, Barney plans to go into the power field, as he feels that there is greater opportunity and less overcrowding in this field.

PRESENTING



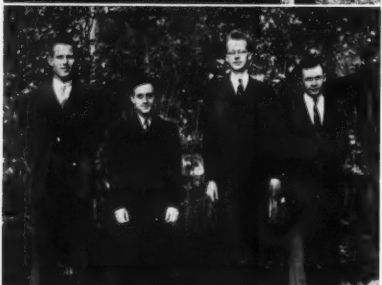
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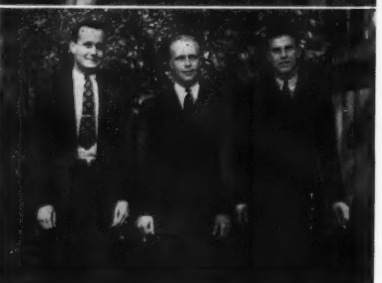
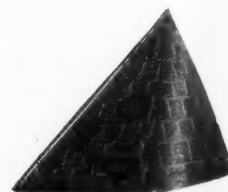
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 Paul A. Schaaf '39 C.E.Cataloguer

Tau Beta Pi



Honorary Society in Mechanical Engineering

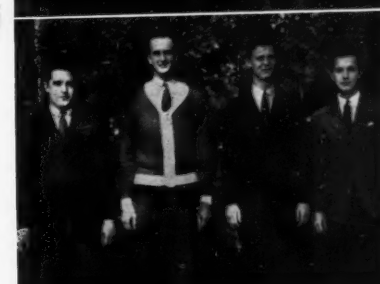
*Robert B. Heyward '39 M.E.Vice President
 William T. Mills '39 M.E.President
 Thomas I. S. Boak Jr. '39 M.E.Secretary-Treasurer

Atmos



Honorary Society in Administrative Engineering Kappa Tau Chi

*Charles S. Bowen '40 A.E.Secretary
 Ralph McCarty Jr. '39 A.E.Treasurer
 Frederick A. Reimers '39 A.E.President
 Ned F. Wagner '39 A.E.Vice President



Honorary Society in Civil Engineering

*Joseph M. Steele '39 C.E.President
 Carl Harger '39 C.E.Vice President
 Paul A. Shaaf '39 C.E.Secretary-Treasurer
 William H. Scott '39 C.E.Corresponding Secretary

Chi Epsilon



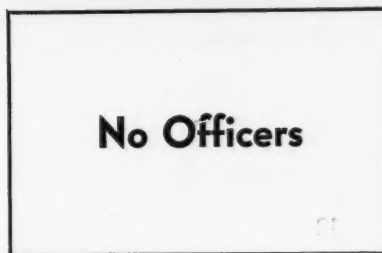
Social Club in Electrical Engineering

OFFICERS ARE UNIMPORTANT TO THIS CLUB
 Elections come later

Delta Club



*Left to Right



No Officers

CORNELL SOCIETY of ENGINEERS

WALKER L. CISLER '22, President

80 Park Place, Newark, N. J.

WILLIS H. CARRIER '01, Vice President

Carrier Corporation, Syracuse, N. Y.

PAUL REYNEAU '13, Secretary and Treasurer

107 East 48th Street, New York, N. Y.

DAVID HARMON 31, Recording Secretary

21 Audubon Avenue, New York, N. Y.

"The objects of this Society are to promote the Welfare of the College of Engineering at Cornell University, its graduates and former students and to establish a closer relationship between the college and the alumni."

President's Column

Fellow Engineers:

All of you are deeply interested in the future of the College of Engineering. Your association with the College as a student and in the years following has fostered in you a personal feeling of inward pride in being a part of its past development. Naturally you would want to know what is in progress leading to increased facilities and betterment.

The accomplishment of its former students, numbering almost fifteen thousand, are many. In some instances they have resorted from individual initiative and effort but in most instances they have come out of teamwork with others, showing, of course, in this day how important it is to work harmoniously with others to produce the greatest good. The results of their labors have not been entirely along engineering lines but have been manifested in many branches of human endeavor. But whatever may be the nature of the work, whether in engineering, economic, social, financial, or political fields, all have brought distinction to Cornell.

It seems as though an engineering education, as the background upon which to build natural talents, has been very successful. It is apparent, therefore, that the measure of success of the future, as in the past, rests upon the acceptance and functioning in many fields of those who attend the engineering college. It has often been expressed that technological developments have brought about problems in our social order which generally can best be solved with the assistance of those having a technical education coupled with broad experience and mature judgment.

The continuation of progress in an enterpriser, whether industrial or educational in its operation, is largely, dependent on forward thinking and sound planning for what lies ahead. Our Engineering College

is no exception to this. Realizing the importance of "Plans for the Future Development of the College of Engineering," your society arranged for a dinner meeting held on November 10th at the Cornell Club in New York. The speakers at this meeting were President Day, Mr. DuPratt White, Vice Chairman of the Board of Trustees, Dean Hollister, Mr. R. H. Shreve, designer of the proposed new buildings, and Mr. Bancroft Gherardi, Engineering Trustee and Chairman of the Committee on General Administration.

For the past year and more these plans have been taking shape and for the first time were presented in open meeting. It was an opportunity for the members of the Society to hear at first hand what these plans are. A full account of this important meeting will be given in the next issue of the CORNELL ENGINEER.

The Editorial Staff of the CORNELL ENGINEER is to be complimented on the excellence of the October issue. Two thoughts occur to me in this connection. The articles written by Alumni are especially good. Those of you who wish to prepare articles should communicate with Mr. H. B. Reynolds,

600 West 59th Street, New York, N. Y., who is Chairman of the Committee on Publications. The second thought is that among the alumni there are no doubt many who would be desirous of advertising in the CORNELL ENGINEER if the subject is brought to their attention.

The December meeting of the Society will be held in New York at the time of the annual convention of the American Society of Mechanical Engineers.

Very sincerely,

WALKER L. CISLER,
President.

THE CORNELL ENGINEER



WILLIS H. CARRIER '01, Vice-President

THE INDIVIDUAL CORPORATION

By MAXWELL M. UPSON, M.E. '99
President—Raymond Concrete Pile Co.

ACTING ON INITIATIVE

I recall a rather courageous, self-confident young man who got himself on the firing line by writing a somewhat admonishing and coaching letter to a salesman who had closed the sale of a product at a price carrying an excessive profit, and for a use for which it was ill-fitted. The letter set forth that healthy business is based on a fair profit and that inordinate margins usually become known to the purchaser, which in turn engenders lack of confidence and ill-feeling; and that above all that, good engineering must not be subordinated to enthusiastic salesmanship. The irate salesman brought the letter in to the General Manager and asked that the young man be disciplined. It was then that the salesman found he had become the object of censure. A few days later the courageous youth was called to the General Manager's office and interrogated on whether he had written the letter, and why. The conversation ended with warm approval on the part of the Chief Executive and an increased salary for the young man. Here, courage and self-confidence coupled with sound judgment had won distinction and promotion.

However, the pushing down of another man to put yourself forward usually reacts adversely and breaks a fundamental law of corporation ethics. I have mentioned the sand and grease that impede and lubricate the corporation wheels. They are the factors that have paramount influence on production and efficiency. Men must work together with a spirit of cooperation. Many good men can not be used because of the lack of this important asset in their souls.

Some years ago I hired a young engineer just graduating from college. He was to begin work July 1st. In May he wrote me that he would like to know a little more about the business and hoped that I would see him on a Saturday morning. I replied that I would not be in my office that day but that I would be glad to have him come to my home to supper Sunday evening, when an opportunity for a conversation would be pro-

vided. No reply came to this invitation, and after awaiting his arrival for an hour we proceeded with supper, thinking that my invitation had not reached him. The next morning I found him in my office. On expressing my regret that he had not received my invitation, he surprised me by stating that he had received it but had been invited to a house party on Long Island and had gone there instead. When I inquired why he had not written or wired me, he said, "I just didn't happen to think of it."

You may well imagine that I had to point out to the youth that consideration, and thoughtfulness of obligations, and service to fellow-workers and friends, are the framework on which a successful corporation rests, and without it nothing can be achieved. I was also forced to indicate that his utter lack of these qualities disqualified him from service in our company.

HARD WORK AND ENTHUSIASM

Brilliance, courage and judgment are not of much avail unless several other cardinal productions are maintained. Cooperation, dependability, loyalty, and honesty must supplement a keen intellect and marked ingenuity. It is possible to make a first sale on a snappy design and a brilliant polish, but the repeat orders that we have been discussing do not come unless the quality and durability are maintained. It is interesting to observe that the men who usually go to the top are not the brilliant and outstandingly ingenious. The tenacious, dependable and sometimes slow of mind, who eternally and enthusiastically pursue their course, finally master every detail and gain the confidence of the personnel as well as the heads. Reliability covers up much slow thinking.

I have mentioned the eternal and enthusiastic effort. That is ninety percent of the production department's duty. Edison said, when some one inquired where he got the inspiration for his many discoveries, that "it was not inspiration, it was perspiration."



So you will find, as you gain experience, that there is no substitute for hard work. As I look back on my own life, I can see that every milestone of progress has been built on work that I did outside of working hours. The engineer who leaves college with the complacent sensation that his study days are over, had better apply for a job as a shoe salesman; the profession does not want him. A college education is a preparation for a life of study, and he who would go far must ever keep this in mind.

It is not my intention to imply that all this study must follow engineering lines. In fact, such a procedure would be most narrowing and detrimental to a broadening development. One of the serious indictments of the engineering profession is that our men are frequently skilled artisans instead of educated and cultured men. Remember that the man of affairs must strive to know everything about his profession and something about everything else.

It is interesting to observe that in the handling of men and persuading them to your point of view, the knowledge quite outside of our profession stimulates their interest and gains confidence. Wise reading provides this knowledge, if it is analyzed and discussed so that definite and logical conclusions are formed. Many readers consume an endless amount of literature and digest seemingly nothing; one wonders if they even taste the facts they swallow. They read for amusement, unthinkingly, without questioning or analyzing. Little mental nutrition comes from such effort. Select your books carefully. Time is precious, and books, like friends, must be of the best if they are not time-killers.

CONTACT WITH GREAT PERSONALITIES

After you have observed life for twenty-five or thirty years, you will notice that the really big men that you have encountered have attained their inspiration and wisdom from association with truly great personalities, either in person or in biographies. These are the mines from which the most precious nuggets of wisdom are taken, and life would be a dreary, uninspiring grind without them.

I often recall with gratitude the good fortune that gave me a boss, on my first job, of outstanding character and ability. His honesty of purpose, his courage and uncanny ability to analyze, combined with his superb energy, gave me in five years more training than most men get in a lifetime. Although death ended the brilliant leadership of his company in ten years, the young men who served him during that period generated a spark of genius that has carried them far in the engineering world. Almost a score of them are now directing heads of some of our large corporations. Although the company was absorbed by another and really lost its identity some twenty years ago, the old employees still maintain contact and meet for a dinner once a year. An esprit-de-corps was generated that time and separation can not destroy. This is an asset that comes seldom to a business, and has an inspirational power of infinite value. Team-work and mutual respect are necessary factors in corporate success. This means that the individual must look his various de-

1740 Thurston Avenue
Ithaca, New York
March 2, 1938

Mr. Harry G. Rosner
General Manager
Industry, Inc.
Kansas City Missouri.

Dear Mr. Rosner:

Professor J.H. Moynihan of the College of Engineering, Cornell University has shown me your letter which mentions that you are contemplating employing an application engineer. Please consider this letter as an application for that position.

I shall complete the required courses for a degree of Bachelor of Mechanical Engineering at Cornell University in May 30, 1938. In addition to the regular technical courses, I have had extensive work in economics, salesmanship, law, and product development engineering.

During the summer vacations of the past four years, I have been employed as an application and design engineer in the office of the S.A. Logg Company, 244 West Market Street, Boston, Mass.

I am enclosing for your consideration a standard personnel blank with additional qualification data.

I shall be glad to come to your office for an interview any time at your convenience.

Yours very truly,
Robert Abtater
Robert Abtater

ADVERTISING

SALES



THE INDIVI
CORPORAT

POLICY DE

INDIVIDUAL
CORPORATION

POLICY DEPT.

ACCOUNTING

PRODUCTION

BUDGET FOR THE SCHOOL YEAR												
UNRECORDED EXPENSES												
Tuition												
Deposits												
Room												
Board												
Laundry												
Books, etc.												
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Thompson, etc.												
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Charity												
Child												
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Business												
Personnel												
Total, Legitimate												
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ALL EXPENSES												
Expenses												
Less Expenses												
Scholarships												
ALL RESOURCES												
Resources												

Name: Alexander, Robert
 (Name Address: 1241 Thompson Avenue
 Date of Birth: July 14, 1917 Height: 6'0" Wt.: 150#)

Working Experience:
 Summer Employment Year - Apprentice Air Conditioning
 service department. Brown Engineering Co.
 Summer Junior Year - Traveling Sales Department - I.R.B.
 Summer Senior Year - Traveling Survey Western Industrial
 Plant.

Extra Curricular Activities:
 Faculty Activities: Lacrosse, Track
 Interfraternity Activities: Interfraternity, Basketball
 Other College Activities: Chess, Bridge, Ping-Pong
 Officer: Vice President, Student Body
 Summer and Winter: Red Key, Honor, Honorary Music Club
 Personality Activities:

Quarter of Class: 1st

Name: Barker, Henry
 (Name Address: 1241 Thompson Avenue
 Date of Birth: July 14, 1917 Height: 6'0" Wt.: 150#)

Working Experience:
 Summer Junior Year - Counselor Boys Camp

Extra Curricular Activities:
 Faculty Activities: Football, Track, Soccer
 Interfraternity Activities: Basketball, Bridge
 Summer and Winter: Red Key, Honor, Honorary Music Club
 Personality Activities:

Quarter of Class: 2nd

BUDGET FOR THE SCHOOL YEAR												
Tuition												
Deposits												
Room												
Board												
Laundry												
Books, etc.												
Class Ter												
Travel												
Chores												
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Business												
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Total, Legitimate												
Total, Monthly												
Expenses												
Less Expenses												
Scholarships												
Resources												

partment heads in the eye with courage and confidence, especially when complications are many and the going is hard.

Most modern companies have a Personnel Department. It usually functions as a committee. Every employee must be approved by this committee before he comes into the company. It is a sieve through which all personnel must pass. Naturally it aims to select only the best and to reject all the elements that will impede, contaminate or weaken. Rare genius is required in this effort, and it must be supported by courage and tact.

You who have to serve on that committee in your individual corporate setup, must take up your responsibilities immediately. Friends and associates count as much as any factor in guiding a man in the right direction. In selecting a man for an important position, the first questions asked are: Who are his friends? With whom does he associate? I have seen many rejections on that score. A man who does not pick the right kind of friends is either too stupid to analyze, or of an inferior quality himself, and naturally gravitates to a lower stratum.

Allusion has been made to the waste of time that comes from the improper selection of books. Unworthy friends are an even greater menace. On the other hand, no asset counts more than worthy and genuine friends. These do not come for the asking; neither are they easily held. They constitute responsibilities that require thought and effort. We get from them in proportion to that which we give of ourselves. The old copybook phrase: "If you would have friends you must show yourself friendly," holds as a great truth that must ever be remembered.

True friends have an important position in the column of your personal assets. They come under the *liquid* heading and add greatly to one's credit when it is most needed.

COST SETUP

Nothing has been said so far about the Cost Department of our corporate setup. Many corporations start out with an excellent product and an efficient sales and production organization, and yet find themselves in the hands of the bankers or creditors in a year or two. Their cost figures are wrong. After all, it is axiomatic that outgo must be kept within income—although in these times I regret to observe that there seems to be a certain governmental school that differs from that statement. On this we will not debate.

Recently the head of a company asked my advice about advancing a man who had long been with their organization. Although the man had many fine characteristics and had been doing his work well, and really deserved recognition, the personnel committee had pointed to the fact that he never seemed to be able to live within his income; that his expense accounts gave evidence of being carelessly kept. The new position involved the determination of business policies and the handling of men. Manifestly no man is capable of leading men who can not control himself. Leadership is built on respect. If a man can not handle his

personal finances it is probable that he can not handle those of the interests he serves. In consequence, the chief executive said he was forced regretfully to decline to advance the man.

Costs are not always measured in dollars and cents. It is interesting to observe that most men have what we call a "satisfaction or complacency point." They work hard and give their major energy until they have attained a certain income. At that point—it may be \$5,000, \$10,000 or \$25,000 a year—they settle back unconsciously and try to ride on their momentum. I know a very able executive who maintains that more men are ruined by too rapid advancement than by the lack of recognition of their abilities. This dissipation of effort is frequently chargeable to a breaking down of the cost department. More money opens up avenues for the consuming of time and energy. Men—and more frequently wives—begin the game of "keeping up with the Joneses." They forget that the human system provides only about so much energy. In consequence, business suffers. It is then that the skill of the boss is required. As indicated in the incident previously recounted, having to do with the remaking of Jack, drastic actions are required to regenerate real effort.

An individual cost system that fails to account for time neglects the most important human expenditure. It slips away faster than dollars, and usually carries most of the dollars with it.

THE POLICY COMMITTEE

And now before ending, I want to turn your thoughts to the duties and aims of the Administration or Policy Committee. This is the bridge of the corporation ship. All controls are concentrated thereon, and the desired destination will never be reached unless these controls are properly operated. If we may follow this figure of speech further, it is well recognized that the all-essential in proper and successful navigation is the holding of the vessel on a straight course. If this is true on the sea, it is infinitely more so in life.

One of the saddest spectacles of human experience is the contemplation of the many shipwrecks that have resulted because of a deviation from the straight and honest course. I recall several of my college friends—markedly able, having charming personalities, robust health and physical charm, with every promise of success—yet attaining no distinction in their profession after more than thirty years of effort. I noticed in college a tendency on their part to crib in examinations and to flinch when telling the truth hurt; but I thought at that time these were youthful weaknesses manhood would overcome. Yet I am certain that were you to ask them today the cause of their mediocre success, they would blame the unfairness of some associate or the iniquities of the present economic setup. Society doesn't tell a man that he isn't honest; he loses a pro-

motion or finds himself let out when there is a slight let-up in business activity. Every executive is constantly alert to ascertain the moral standards of his employees; seemingly insignificant incidents disclose their method of thought.

This is well illustrated in Colonel Charles R. Gow's book: "Foundations For Human Engineering," which I recommend to all young men starting to earn a livelihood. Colonel Gow for many years was associated with me in business and I happen to know the principals of this incident that he records.

The President and General Manager of a large corporation were considering the selection of a superintendent of a department. The General Manager said, "I am inclined to recommend So-and-So, who seems to have great promise; my one reservation is his extreme youth." After some debate, the President said, "Call him in; I want to size him up myself." When the young man appeared, they entered into a general discussion of the business and of the characteristics essential to the proper supervision of his department. He sensed that they were apprehensive of his youth. Finally the President asked him definitely what his age was. He colored slightly and said twenty-nine years.

After terminating the interview, the President asked to have his age definitely checked, and found that it was twenty-eight years and three months. Not only was the promotion lost, but the President said, "The sooner we get rid of that man, the better. If he will tack nine months on his age to further his interests, he will do it in other matters in which I am dependent on his honesty. He must go." This man does not know to this day why he lost his position.

ACCURACY COUNTS

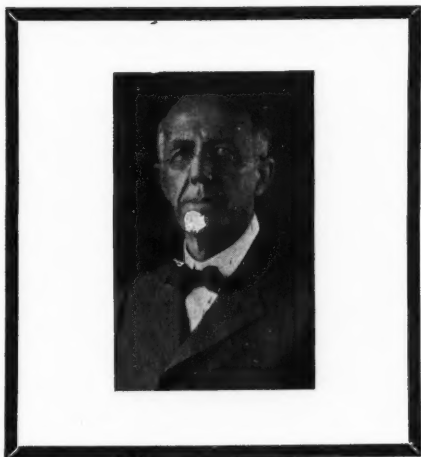
Engineers deal with facts. A recording instrument which is inaccurate is useless. So, too, is the individual who fails to record with exactness. On the other hand, the man who discloses that he sticks to the truth whether or not it reflects upon himself, immediately gains the confidence of those he serves.

Recently, the head of one of our departments said, "I am letting such-and-such a young man go." I inquired the reason and was told that on two occasions the receipts for his payroll showed evidence of having been tampered with. I pointed out that it might have been the correction of errors. It was then that I was told that an honest accountant would never permit a doubtful looking document to go through his hands without making proper explanation, and that in no instance could it happen twice. Here again, a young man lost his job without knowing the reason.

A corporation attains distinction and prestige by employing the policy of the Golden Rule. Business comes without solicitation; lawsuits are avoided; confidence is established. You will find it interesting to observe that the ideals and policies of the employees

(Continued on page 26)

In Memoriam



1871 - 1938

ERNEST W. RETTGER

Ernest W. Rettger, professor of mechanics in the School of Civil Engineering, died at 4:40 o'clock Sunday morning, October 9, 1938, at the Tompkins County Memorial Hospital. Funeral services were held at 2:30 o'clock Tuesday afternoon, October 11, 1938, in Sage Chapel with the Rev. Abbot Peterson, Jr., of the Unitarian Church, officiating.

Professor Rettger was born at Huntingburg, Indiana, April 6, 1871. He was a graduate of the Indiana State Normal School and Indiana University, receiving his A. B. degree in 1892. In 1898 he received his Ph.D. degree from Clark University. He began teaching as an instructor in mathematics at Indiana University in 1898, and subsequently taught at Stanford University, Princeton University, and Warrensburg State Normal School before coming to Cornell as honorary fellow in structural mechanics in 1906. He was an instructor in civil engineering from 1907 to 1908, and was appointed assistant professor of applied mechanics in 1908, and professor in 1932.

He was the author, with Professor S. G. George, of "Mechanics of Materials", a widely used textbook, and of numerous technical articles in mathematical and engineering journals. He was a member of Sigma Xi, Phi Kappa Phi, Phi Gamma Delta, Pyramid, and the Society for the Promotion of Engineering Education. His experience as a consulting engineer included assistance in planning a bridge over the Chemung River at Elmira, N. Y.

He is survived by his widow and two children, William Vivian and Mary Dorothy.

Tribute to Professor Rettger's influence among faculty and students of the College of Engineering was paid by Dean Hollister and Director Malcolm. Dean Hollister said, "Professor Rettger was a splendid and inspiring teacher. He possessed the enthusiasm of a young man. He had the ability to sense the level at which individual students were thinking and hence was able to help them over many a pitfall. He was interested in the personal problems of students and large numbers of them have benefited from his sage advice. His memory will always remain a warm and personal one to those who knew him".

Dr. Malcolm said, "On behalf of the School of Civil Engineering of Cornell University, I wish to express our great sorrow at the loss of Dr. Rettger, professor of mechanics. Dr. Rettger has been a very honored and valuable member of the staff. His colleagues will miss a very valued friend and the students will miss a respected and honored teacher".

PROFESSOR ERNEST WILLIAM RETTGER, Ph.D.

An Estimate of His Personality

By S. G. GEORGE

When it has been your good fortune to work in close harmony and high esteem with a man day by day over a period of thirty years, it is certain that his personal qualities will have been forcibly impressed upon you. It is a pleasure to put my impressions on record and to recall to the memory of many of his former students what to me are the characteristics that made him effective as a teacher and as a man.

A graduate of the University of Indiana and of Clark University, he was most of all a loyal son of Cornell. No effort that was possible to him was ever denied if thereby he could serve the university of his choice where his life work was capably done. He had on many occasions devoted much time and energy to the problems that confront the faculty. Particularly in the plans for the improvement of the organization and operation of the Graduate School of Engineering, he was a thorough and persistent leader. The details of estimating the qualifications of graduate students in Civil Engineering for years fell to his lot. For them he served as adviser and friend. As a teacher he did not fail to be their admitted superior in grasp of the subjects under his charge, nor did he lack in giving them a lasting urge to accomplish even more than they thought themselves able to do.

He was a diligent and constant worker. For years past it was his habit to be in the building where he taught by seven in the morning. His teaching was well planned beforehand, and he threw his whole energy into his classwork with an enthusiasm that had a deep influence upon his students. He was a successful teacher for this reason alone, even if there were no other explanation for his ability to lead his followers. But an early and intensive training in mathematics and in physics, an instinct for careful and logical reasoning and for sound proofs, set firmly in his makeup by several years of teaching before he came to Cornell, account more fully for his outstanding influence as a leader of ambitious young men.

The faculty for a long time was well aware of his excellence in mathematical work, and a number of difficult problems were neatly solved by the application of advanced methods of attack not known to more than a meager few. The proportional weir, the pipe-line of the greatest economy, a critical study of columns, the piers for a bridge in Elmira were, among other problems, of the type which enlisted such interest and such profound application of his knowledge.

His students, numbering thousands, have been fortunate in having instruction by a teacher so entirely devoted to their advancement; his fellow teachers miss a helpful friend for he bore enmity to no one; the University community lost a diligent and loyal, wise and witty, revered and unique member. It seems a hopeless loss that he could not bequeath all he knew to those that must carry on.

WITH THE

ADDITIONAL FACULTY MEMBERS

Eleven instructors and one full-time assistant have been appointed to the staff of the College of Engineering. A. B. Credle '30, who is assistant professor of electrical engineering at Clemson College, will be instructor in the School of Electrical Engineering for one year, exchanging positions with H. G. Smith '30 of the Cornell staff, who will go to Clemson.

Other appointments, all in the Sibley School of Mechanical Engineering, follow: Reginald B. Allen, B.S., in A.E. '38, assistant in administrative engineering; Lewis S. Bock, M.E. '29, who has had experience with the Brooklyn Union Gas Company and other concerns, instructor in administrative engineering; L. D. Conta, who holds B.S.M.E. and M. S. degrees from the University of Rochester and was a John McMullen Graduate Scholar last year, instructor in experimental engineering; John Georgian, B.M.S. from the University of Minnesota, instructor in machine drawing; G. M. Hutchison, B.S.M.E., Virginia Polytechnic Institute, who has been employed by the General Electric Company, instructor in machine drawing; W. H. Kreamer, B.S.E. Rensselaer Polytechnic Institute, who has been employed by the General Electric Company, instructor in machine drawing; N. O. Myklestad, graduate of the Royal Technical College, Oslo, Norway, who has had experience with several industrial concerns and has been taking graduate work at the University of California, instructor in mechanics; E. J. Schiller, Jr., B.Sc., Brown University, who has been employed by the General Electric Company, instructor in machine design; J. H. Shank, who holds the M.E.T. degree from the Colorado School of Mines and has been employed by the Republic Steel Company, instructor in experimental engineering; D. D. Sherrill, B.S.M.E., University of Colorado, who has had three years of experience with the U. S. Bureau of Reclamation and has taught at the University of Iowa, instructor in machine drawing; and G. K. Williams, E.E. '32, who also holds the M.M.E. from Cornell and has been employed by the Westinghouse Electric Company, instructor in mechanics.

MCMULLEN GRADUATE SCHOLARS

Appointment of nine John McMullen Graduate Scholars in Engineering and continuance of the appointments of four others have been announced by Dean S. C. Hollister of the College of Engineering. Recipients of these scholarships receive \$1,000 a year while pursuing research as candidates for advanced degrees.

New scholars are J. J. Brezina '38 M.E.; Nicholas Kulik '38 M.E.; Wilbur R. LePage '33 E.E., who has been an instructor at the University of Rochester; Charles Raudenbush, who holds the B.S.E.E. degree from Penn State; Glenn J. Schoessow, who holds a B.S.M.E. from

North Dakota A. and M., and an M.S.M.E. from Purdue and has worked with the Babcock and Wilcox Co.; Edgar Schoij, B. S. M. E. from the University of Illinois; W. P. Simpson, B. S. C. E. from Kansas State College, who has taught at Kansas Wesleyan University; Don L. Stockton, B.S. Chem. E., University of Southern California; and George Winter, who holds a diploma from the Polytechnic Institute of Munich, Germany and has lectured at the Mining Institute, Sverdlovsk, U.S.S.R.

Those whose scholarships have been extended include P. G. Bohlke, J. H. Norris '37, J. O. Osterburg, and W. E. Parkins.

ARMY GRADUATES AT CORNELL

Thirteen graduates of West Point have been detailed to Cornell University this fall for graduate work in civil engineering by Col. S. C. Godfrey, executive officer, Military Division, Corps of Engineers, War Department, Washington, D. C. They will remain for a full academic year and a summer session as candidates for the degree of M.S. in Engineering. This group brings the total number of West Pointers detailed to Cornell since 1924 to 122. Fifteen completed their training at the end of the summer session.

The new men are Lts. W. L. Rogers, W. S. Everett, S. A. Armegida, J. D. Cole Jr., C. Bidgwood, K. T. Klock Jr., R. Waugh, G. A. Finley, S. E. Finley, S. E. Smith, K. F. Edlund, E. H. Dillon, L. F. Funchess, and D. G. Hammond.

COBB-KARAPETOFF

Friends of Professor Vladimir Karapetoff of the School of Electrical Engineering, were surprised by the announcement that he was married nearly two years ago to a well-known woman scientist, Miss R. M. Cobb of Winthrop, Mass. and Leonia, N. J. The ceremony was quietly performed on November 25, 1936 at Dobbs Ferry.

Cited recently by the New York Times as one of the leading women chemists in the country, Miss Cobb, who retains her professional name, has specialized in industrial colloids and their application to paper technology. In addition to her research and consulting work, she has published several papers.

TAU BETA PI ELECTS THIRTEEN MEN

The following have been elected to Tau Beta Pi, honorary engineering society: Jack Ralston Babson, Douglas Bryan Blackburn, Joseph Coors, Carson Mullen Cornbrooks, Udo Wilfried Fischer, Carl Harger, Herbert Frederick Hilmer, Robert Mann, Everett George Moeller, Robert Hamilton Nagel, Richard Gillette Smith, Joseph Middleton Steele, William Dean Wallace.

AT THE END OF

ENGINEERS

HISTORY OF MODERN ENGINEERING

How modern principles of engineering, used as a matter of course every day in constructing bridges, dams, and electric power projects, were discovered hundreds of years ago by men using primitive apparatus and working without even a knowledge of some branches of mathematics, was explained by Dean S. C. Hollister on Friday, October 14, to seniors in mechanical and electrical engineering. On the table by his side was a series of first editions of early books from his unusual private collection and from the rare book repository of the University library, several of them printed in Latin in the fifteenth century, at the very beginning of the art or printing. He also had lantern slides of title pages and significant illustrations from these early books, as well as of historic bridges and other early engineering structures.

He said that while plane geometry was developed by Euclid about 300 B.C. and the Alexandrian Greeks knew spherical trigonometry, algebra, which is an analytical rather than a descriptive science, was not developed in usable form until the sixteenth century. The first printed book on algebra was written by Fra Pacioli and printed in 1494, including a system of double-entry book-keeping essentially that in general use today. The algebraic equation had not yet been invented, however, and problems were worked out in sentence form.

The first printed book dealing specifically with engineering was written by Simon Stevin, a Flemish philosopher, and published in 1856. He was interested in the action of forces, and worked out by a system of strings and weights, the theory of the triangle and parallelogram of forces.

The first book in electrical engineering was issued by William Gilbert in 1600, and dealt with magnetism. His investigations were based primarily on the action of the lodestone. Lodestones were carried about merely as entertaining novelties and lucky pieces until Gilbert proved their significance as a means of establishing scientific principles.

In the field of mechanics, he said, Guido Ubaldo del Monte published the first book in 1586, giving diagrams and mathematical demonstrations of the action of the pulley, the lever, the screw windlass, and forces moving along inclined planes. In the mechanics of materials, Galileo was the pioneer, publishing a work in 1638 that worked out the formula for determining the strength of beams, as well as the law of falling bodies and the parabola of the flight of projectiles.

Not until 1773, however, did a work appear which gave scientifically determined formulae for such vital en-

gineering problems as the variation of stress across a beam, the theory of maximum shear for failure of compression members, the pressure of earth against retaining walls, and the proper curvature of the masonry arch. Coulomb, a great French military engineer, who wrote this book, later determined the law of torsion.

"The modern engineering method of experimentation plus analysis really began with Coulomb, though it was earlier discussed by the French philosopher Des Cartes," Dean Hollister said. "He and his predecessors and many of his immediate successors made tremendous contributions to the principles of engineering. The practice of engineering in modern times has been seriously retarded because until recent years little attention has been paid to the works of some these great pioneers."

RELICS OF FORMER DAYS

Workmen tearing up the concrete floor of the Mechanical Engineering Laboratory behind East Sibley Hall on the Cornell campus have uncovered a 32-foot well. Perfectly preserved after having been sealed up and forgotten for half a century, this well is the last relic of the first structure erected on the site of the present Cornell campus—a farmhouse once owned by Ezra Corneil, founder of the University.

Cornell University still possesses the deed by which on August 10, 1866, the house with its small farm was transferred to the institution by Mr. and Mrs. Cornell. An atlas of Ithaca printed in that year shows the house, located on a spot now partly covered by the Engineering Laboratory—the only structure on all the acreage between Fall Creek and Cascadilla Creek now covered by the University Campus. The sturdy house was to serve the University for 35 years before it was finally razed.

In the beginning it was the headquarters for the work in agriculture. Lewis Spaulding, who directed the initial venture, was living there in 1869, and later the house was rented to Professor I. P. Roberts, who became first director of the College of Agriculture. Early University maps call it the Cornell Farmhouse, and early students of the College of Engineering still recall the apples they picked in the adjoining orchard which extended south of the present site of East Sibley.

When a new Mechanical Engineering Laboratory was projected in 1887, east of the one already in use, the Board of Trustees directed that the farmhouse be moved some yards east so that East Avenue, which then ran straight to University Avenue without its present curve, would pass between the house and the new engineering building. With the completion of the laboratory in 1888, the well had been capped and covered by the cement floor.

THE QUADRANGLE

NOVEMBER, 1938

19

COLLEGE NEWS

In Memoriam



Leslie A. Fenner

Dean S. C. Hollister of the College of Engineering and Director W. N. Barnard of the Sibley School of Mechanical Engineering issued the following statements concerning the death of Leslie A. Fenner, instructor in mechanical drawing. A member of the Cornell faculty since 1918, Fenner died Thursday morning, October 20, at 4:20 o'clock in the Conklin Sanitarium.

Dean Hollister: "Mr. Fenner had begun his twenty-first year of instruction in the Sibley School of Mechanical Engineering. Over all those years every freshman in that school came to know and regard him highly. He attacked his work with enthusiasm and interest. New ideas in teaching methods were always welcome. The College has lost a good teacher, and its faculty a sincere and loyal colleague."

Director Barnard: "Through the death of Mr. L. A. Fenner, the College of Engineering has lost one of its most useful members and most highly respected teachers. Of modest and retiring demeanor, he served the College faithfully for more than twenty years. In addition to his able instruction, his fine character and personal influence have made a lasting impression on hundreds of engineering freshmen at their most receptive age, to their benefit throughout the remainder of the college course and in after life. Because of his eagerness to be of service, he was given many important assignments in addition to his class work, with the assurance that the work would be done willingly and ably. His services and kindly presence will be greatly missed by all who have had the good fortune to have been associated with him."

ITHACA SECTION OF ASCE

Harry J. Van Valkenburg, Ithaca Police Commissioner, was the principal speaker at the annual dinner meeting of the Ithaca Section of the American Society of Civil Engineers on Thursday, October 21, at 6:30 p.m. in Willard Straight Hall. His talk, which has won plaudits from the sporting elements of the local population, was entitled, "From Cortland to Binghamton with Canoe and Paddle, Rod, Gun and Camera, and a Couple of Pounds of Bacon." He was accompanied by his official guide, Former Mayor Louis P. Smith, and his official photographer, H. J. Fenner.

The tale of these doughty explorers will be the only non-technical subject to be heard by the Ithaca Section this year, Secretary John E. Perry has promised. At the business meeting to follow the dinner, reports of committees were heard and officers elected for the coming year.

ENGINEERING IN THE NAVY

Pictures of cranes, boilers, dry docks, hospitals, hangars, generators, and causeways were flashed upon the screen in Baker Laboratory on Tuesday evening, October 18, as Lt. Commander L. F. Bellinger, USN, CE '87, explained to the assembled student chapters of the ASCE, ASME, and AIEE, the engineering work carried on by the U.S. Navy.

Flavoring the pictorial description with humorous anecdotes, Lt. Commander Bellinger presented some of the more exciting experiences he has had while engaged in the engineering construction work of the Navy.

FACULTY MEMBERS ATTEND CONVENTION

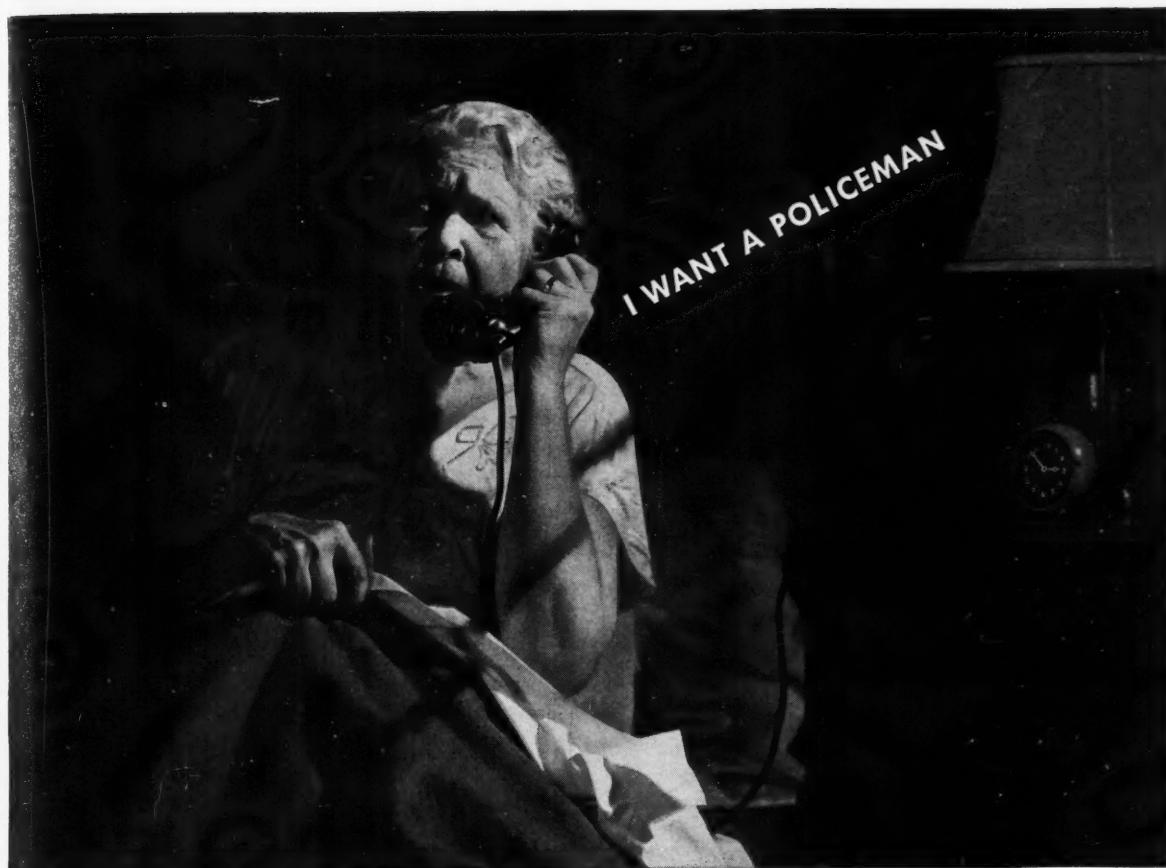
Three faculty members of the College of Engineering took part in the program of the national fall meeting of the American Society of Civil Engineers, which was held at Rochester October 12-14. Dean Hollister delivered an address on "Development of Structural Analysis over Three Centuries—in Commemoration of the 300th Anniversary of the Beginning of Modern Structural Theory" at the opening general session Wednesday morning.

Professor E. W. Schoder of the School of Civil Engineering led the discussion of a paper on "Hydraulic Model Tests for the Southern New York Flood Control Project", a project on which he is a consulting engineer. Professor Charles Walker discussed a paper on "Progress in the Control of Water Pollution in New York State".

ASME HEARS OF GRAND COULEE DAM

Out in the west things are done in a big way, the student chapter of the ASME learned as they listened to Dana Waring '39 tell of the Grand Coulee Dam in Washington. Speaking in West Sibley on Tuesday evening, October 11, Mr. Waring attacked the subject armed with overpowering statistical evidence. The audience was told that Grand Coulee Dam is over 500 feet high, 4,300 feet long, $2\frac{1}{2}$ times the size of Boulder Dam, will irrigate 1,200,000 acres, and will generate 1,980,000 kilowatts. To aid the audience in comprehending the size of the dam, pictures which Mr. Waring had taken a year ago last summer when he visited the dam were projected on the screen.

THE CORNELL ENGINEER



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News of the Alumni

Here is a chance for some alumnus to do his bit for the old school. Professor G. B. Upton of Cornell wrote a book entitled "Materials of Engineering" that was used as a text some years ago. The book was copyrighted in 1915 and has now gone out of print. It is an exceptionally fine book and the College of Engineering Library is anxious to obtain additional copies, as it has but two at present. Would any of you men be willing to donate or sell your copy of the book to the library? The College would appreciate it a lot, and incidentally we Juniors and Seniors would find it much easier to do our mech lab reports if more copies were available at Sibley Library. If it is a text you have ceased to use and would like to make available for the belabored students, we would like to hear from you about it. Not every man can leave a clock tower to the school he learned to love, but if there is an idle book in his attic, you can bet the students will appreciate it more than will the mice.

Alumni will be interested to note that the Cornell Club of New York City has moved into new headquarters. The new home covers an entire floor of the Hotel Barclay at 107 E. 48th St. and has a floor area nearly twice as great as the recent headquarters at Midston House. This will provide the New York branch of the Cornell Society of Engineers with a pleasant locale for the activities planned for the year.

The Cornell Society of Engineers held a meeting on November 2nd at the Hotel Barclay although the new headquarters will not be completely finished until about the first of the year.

'88 E.—Clark Dillenbeck is the chief engineer for the Reading Railway Company. He has been connected with the railroad for 48 years and during that time has assisted in the construction of railway projects as grade crossing eliminations, change of river channels, etc.

One of Mr. Dillenbeck's most important projects was the construction of the huge Reading Commercial Building at Philadelphia, Pa. The new structure with twelve stories and thirty acres of floor space houses a freight terminal, warehouse, and offices, and is located in the heart of the City.

'08 ME.—George P. Jessup, construction superintendent at the Wheeler and Guntersville Dams of the Tennessee Valley Authority, has been appointed project manager of the new Gilbertsville Dam. He will be responsible for construction features of the \$112,000,000 dam, which is being built near the junction of the Ohio and Tennessee Rivers, about twenty-two miles upstream from Paducah, Ky. Designed to develop flood control, power, and navigation, the dam will be 8,600 feet long and 150 feet high at the spillway, and capable of passing 960,000 cubic feet of water a second. Jessup's former projects for the TVA won the award of the National Safety Council for three years.

'08 ME.—James W. Parker, Vice President of the Detroit Edison Company, has been elected to the office of Vice President of the American Society of Mechanical Engineers. He has been elected for the 1939 term and will assume office on December 9, 1938. Mr. Parker lives at 2000 2 Avenue, Detroit, Mich.

'08, '09 ME.—Robert D. Cutter is with the Traux-Traer Coal Company, 731 Soo Line Building, Minneapolis, Minn.

'10 ME.—Charles C. Allen is with the Federal Power Commission, Washington, D. C.

'1 ME.—Francis C. Haywood is treasurer of The Marvellum Company and The Beveridge-Marvellum Company. He is also president of the Glaze and Fancy Paper Association and vice-president of the Engineering Society of Western Massachusetts. He lives at 90 Lexington Avenue, Holyoke, Mass.

'11 ME.—Charles P. Clark is president of Clark Brothers Company, Olean, where he lives at 537 York Street.

'11 EE.—R. A. Hentz is with the Philadelphia Electric Company. Both the Plymouth Meeting Transmission Substation and the Lamokin Frequency Converter Substation as well as others were constructed under Mr. Hentz's direction.

'14 CE.—Arthur M. Field is the City Manager of Winchester, Virginia. During the time in which he has been in office, Mr. Field has greatly improved the condition of Winchester.

'14 CE.—Major Roy D. Burdick is in the military division of the University of West Virginia, Morgantown, W. Va.

'14 ME.—Gilbert C. Halstead, Jr., is treasurer and secretary of E. S. Halstead and Company, New York City. He lives at 58 Wellington Road, Garden City.

'14 ME.—Charles F. Dye, who is in the insurance section of the General Motors Corporation, Detroit, Mich., lives at 581 Lake Park Drive, Birmingham, Mich. He writes that his son, Frederic Dye, Jr., entered Administrative Engineering this fall.

'16 ME.—William T. Todd, Jr., is vice president of Somers, Fittler, and Todd Company, Pittsburgh, Pa. He lives at 1155 Shady Avenue, Pittsburgh.

'21 CE.—Wells N. Allen is with the Raymond Concrete Pile Company, 1740 East Twelfth Street, Cleveland, Ohio. He lives at Berkshire Road, Gates Mills, Ohio.

'22 ME.—Harold R. Harrington is with the Goodyear Tire and Rubber Export Company. He lives at Apartado 2216, Lima, Peru.

'30 ME.—Wilmer C. Swartley is now the manager of Westinghouse radio stations WOWO and WGL. He lives at 919 Pemberton Drive, Fort Wayne, Ind.

'31 ME.—Richard McC. Bentley is an engineer with the General Fireproofing Company, Youngstown, Ohio, where he lives at 248 Northwood Avenue.

'35 EE.—John M. Scutt is with the Ford Instrument Company, Ralson Street and Nelson Avenue, Long Island City. He lives at 41-05 158th Street, Flushing.

'37 BS, '32 ME.—Margaret S. Douglas sailed September 13 for Iraq, to be married shortly after her arrival to Erik B. J. Roos of Baghdad. Roos has been in Baghdad for two years as senior engineer for the Carrier Air Conditioning Corporation.

News of the Alumni

'38 EE.—Charles H. Dawson has been appointed instructor in Engineering at the University of Rochester.

'22 EE.—Harold C. Silent is with the Electric Research Products, Los Angeles, Cal. He lives at 3784 Prestwick Drive, Los Angeles.

'26, '27 ME.—Charles F. Wagner married Annette Beardsley of New York City June 22. They now live in Pittsfield, Mass.

'07 ME.—Charles F. Magoffin is with the Hanover Sales Corporation, 165 Broadway, New York City. He lives at 60 Evergreen Place, East Orange, New Jersey.

'08 CE.—Albert B. Cudebec is with the Loewy Engineering Company, 55 West Forty-second Street, New York City. He was formerly with the Ohio Brass Company, 18 Rue de Tilsitt, Paris, France.

'10 ME.—George F. Hewitt, Jr., has a son, Bruce Logan Hewitt, born June 9. His oldest daughter, Marjorie F. Hewitt, was married August 6 to Frederick P. Smith. Hewitt lives at 40 South Mountain Avenue, Montclair, N. J.

'13 ME.—Jessel S. Whyte, president and general manager of the MacWhyte Company, Kenosha, Wis., writes that his oldest daughter, Ruth, was married last June; the next, Anne, is a senior at Rollins College; and the third, Helen, is a freshman at Wheaton College.

ALUMNI WIN PRIZES

Ten alumni of the College of Engineering won prizes in the recent contest conducted by the James F. Lincoln Arc Welding Foundation of Cleveland, Ohio. With one alumnus of the College of Architecture, they received a total of \$7,224.58 for papers on the uses of arc welding in industry. The special fields covered in the contest were automotive, aircraft, railroad, watercraft, structural, furniture, commercial, containers, welderies, functional machinery, and industry machinery.

Robert V. Proctor '14 M.E. won second prize in the structural division and received \$2,747.39. His paper, "Arc Welded Steel Lining for Shield Driven Tunnels," described the process of tunneling with a shield and the design and use of welded steel lining in constructing the Lincoln Tunnel. He submitted detailed drawings and a cost analysis. Proctor, whose address is R.D. No. 4, Youngstown, Ohio, is general manager of the Commercial Shearing and Stamping Co. He is member of Phi Kappa Tau, is married, and has three children.

Leroy M. Davis '23 C.E. won third prize in the functional machinery division and received \$1,526.33. In his paper, "Prewelding of Turbine Blades for Propeller Units of High Capacity," he reported on a study of carbon steel blades repaired at Safe Harbor by welding. Machinability tests, precautions against warping, and metallurgical factors were carefully considered, as well as costs. Davis, who lives on Summit Ave., Quarryville, Pa., is a hydraulic test engineer for the Pennsylvania Water and Power Company. He is a member of Scorpion Fraternity, the A.S.C.E., the A.S.M.E., is married and has two children.

James T. Lewis, Jr. '27 M.E. won first prize in the jigs and fixtures subdivision of the functional machinery section, and received \$712.28. His paper gave various steps

in the development of a composite high-carbon tram rail track with low carbon upper half joined to a specially rolled section cut from a standard I beam. Assistant works manager of the Cleveland Crane and Engineering Co., his address is P.O. Box 197, Chagrin Falls, Ohio. He is a member of Alpha Delta Phi and is married.

Guy H. Thayer '90 M.E. won second prize in the pumps and compressors subdivision of the same section, and received \$508.77. He gave data on casings for large capacity dredging pumps. Living at 2707 N.E. Flanders St., Portland, Oregon, he is an engineer and draftsman with the port of Portland. He is married and has five children.

In the parts subdivision of the same section, Edward R. Greer '08 M.E. won second prize and the same amount. He described a semi-trailer hitch for use with four-wheel drive trucks, similar to one designed by him for the Allis-Chalmers Co. and used on their Speed Ace units. He is an engineer with the Rotary Snow Plow Company, and lives at Groveland, Lake Minnetonka, Wayzata, Minn. He is a member of Beta Theta Pi, is married, and has three children.

Harry Wunsch '30 M. E. won third prize in the bodies subdivision of the automotive section and received \$305.26 for a description of a compressor type refuse collection truck body. He is a mechanical engineer with the Silent Hoist Winch and Crane Co., and lives at 909 52nd St., Brooklyn, N. Y. He is married and is a member of the Society of Automotive Engineers.

George S. Edmonds '95 M.E., superintendent of motive power for the D. and H. Railroad, won fourth prize in the locomotive subdivision of the railroad section and received \$203.51. He described a welded locomotive boiler made at the Dunkirk plant of the American Locomotive Co. He is married and lives at 35 S. Main Ave., Albany, N. Y.

Charles B. Curtiss '09 M. E. was given fifth prize in the conveying subdivision of the containers section and received \$152.63 for describing a welded motor truck winch. He is proprietor of the Bay City Foundry and Machine Co., and lives at 924 Center Ave., Bay City, Mich. He is a member of Kappa Alpha, A.S.M.E., the Society of Automotive Engineers, and the Engineering Society of Detroit. He is married and has two children.

Richard E. Lasher '21 M.E. won the same amount of prize money in the food making subdivision of the industry machinery section for a fifth-prize paper on a hammer mill for grinding grains. He is manager of the Munson Mill Machinery Co. and lives at 28 Parkside Court, Utica, N. Y. He is a member of Tau Kappa Epsilon and the Mohawk Valley Engineers Club. He is married.

For winning honorable mention in the containers section, Richard E. J. Summers '14 C.E., president of Summers Engineers and Constructors, Inc., received \$101.75. He analyzed designs, constructions, and economics of a welded non-ferrous sluice gate. He lives at 52 Vanderbilt Ave., New York City, and is a member of A.S.C.E. and the American Concrete Inst.

The other Cornell winner was Harold C. Whitehouse '13 Arch., who took third prize in the house furniture subdivision of the furniture section and received \$305.26.

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ENCASEMENT MACHINE

(Continued from page 8)

chine or detailed operation. In the beginning there was simply the general idea that if the operation were practicable the concrete would have to be of good quality. After over two years of successful field applications, however, it has become evident that possibilities of exceptional quality are within reach, a density of absorption under four percent to be expected.

Field experience in the handling of heavy pipe lines has also been highly fortunate. It was expected that the work would be done on pipe when empty, but this was found to be difficult and sometimes impossible when dealing with very light weight pipe owing to excessive vibration due to the machine action. But as a matter of fact, weight in excess of 1,500 pounds per square foot can be sustained successfully. The encasement at points of support is wrapped tightly with heavy waterproof paper, then cradles of suitable curvature are eased up under the pipe at these points. In a simple manner two men with a light weight chain hoist lift the pipe directly in front of the advancing machine to remove the nearest skid, while two men immediately behind the machine carefully slip the cradle into position. Thus the operation of the machine can be continuous, at a rate of travel from two to eight feet per minute along the pipe.

This brief narrative cannot be complete without some reference to the economic elements involved. Sufficient field work has been done to fully justify the effort in service possibilities, with particular reference to savings to be effected in pipe maintenance. Oil, gas and water pipe users may have their old steel pipe renewed for indefinite service at a fraction of the cost of new pipe, this pipe remaining in the trench undisturbed and without any interruption of service. Even badly leaking pipe can frequently be salvaged by simply making the pipe tight long enough for the concrete jacket to set. The reinforced concrete jacket will sustain a goodly portion of hydrostatic pressures incident to ordinary service.

In the field of new pipe installation it is apparent that the combination of very light-walled steel pipe with a reinforced concrete envelope applied continuously after the steel drive pipe is put together in the trench, offers competition to cast iron pipe in larger sizes in both cost and effectiveness of service.

It is apparent that much desirable research can be profitably expended in further development of this operation, and it is gratifying to the author that circumstances may permit this research to be undertaken at Cornell University.

THE CORNELL ENGINEER

SPORTS AT CORNELL

(Continued from page 6)

A game played early in Cornell's history which passed out of existence was polo. Unlike the present game of polo played on ponies, the pre-1888 style was played on roller skates with teams of six players. Intercollegiate games were played, but the sport never enjoyed wide popularity.

It is happily recorded in the annals of Cornell sport that "after considerable agitation" Cornell's first gym was erected in 1871, a building 55 by 25 feet. Public opinion to the contrary, this is not the building in use as a gym today.

Baseball, which flourished from the founding of the University and throughout its early years has been shoved into the background not only by football, but also by other spring sports. A high pressure spring football training period has detracted from the interest in the national game.

Judge Taylor and Robert H. Treman were the early baseball heroes. In 1888, Cornell had its first undefeated team. Much progress has been made by the Cornell teams as they played their games at the Willow Ave. grounds, on the Campus, at West State Street and at Percy Field, and now at Hoy Field.

James M. Tatum of the University of North Carolina is in his third year as varsity coach, having succeeded Paul Eckley, who played at Cornell up to 1916 and coached thereafter.

Basketball first appeared on the campus in 1898, but it was not until 1902 that the Eastern Intercollegiate League was organized. Trainer Frank Sheehan tells of how he would stand in front to the old Armory ringing a bell and shouting "Intercollegiate game of basketball, right this way." Students on the way to the Library to study used to shout in derision. Times certainly have changed.

The long years of sport have seen many new teams added to the original few. Lacrosse, soccer, and hockey, all under the capable direction of Nicky Bawlf, have had their growth. Intramural athletics and winter sports give every student a chance to participate. Wrestling, boxing, golf, polo, fencing, swimming, pistol, rifle and others complete the roster of Cornell sports.

It has been a long trip down through the years of Cornell athletics, and today's games are far different from those of the 1880's. Sports, just like the other games of life, have shown continual growth but, in spite of the technical changes, the same spirit of sportsmanship still rules them.

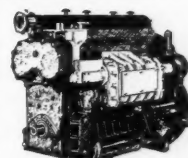
Ed. Note—Though our articles are usually of a semi-technical nature, we felt that this story of Cornell's enviable sports record would be of interest to readers, especially the class of 1942. Many of the latter will choose to seek a place in varsity sport; perhaps this will stimulate their interest in its tradition.

NOVEMBER, 1938

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are usually the reflection of those of the head of the company. Sharp practices and short-cuts on the part of the boss contaminate the whole organization. It is on this matter that an all-important decision must be forthcoming from your individual policy committee.

Many promising young men have the misfortune to begin their business careers with organizations that deviate from the policy of fairness and honesty. They naturally gain the impression that all business is transacted on this basis. They try to put aside their training, and sacrifice their ideals to attain what they understand is business success. This is a frequent and a deadly pitfall.

During almost forty years of business contacts I have found very few chief executives of long-lived, successful corporations who were not idealists and men of strong ethical and religious convictions. Their great aim in life is to serve; to be fair and honest. They conform to this policy not only because they know that honesty is the best policy, but because of their conviction that it is right.

If your policy committee discovers that you haven't that kind of a boss, do not stoop to his level. Adhere to your principles, and if that is impossible, find the right kind of a boss. You can not compromise with principle, and you are sure to go farther under honest leadership.

And this brings me to another duty of your policy committee. I recall one man in my class in college who began his career with a job paying him \$150.00 a month. To most of us who were lucky to get \$40.00 or \$50.00, this seemed to border on affluence. Yet, ten years ago I found him with an income not much greater than that with which he started. He had ignored the important principle of determining what phase of industry he wanted to master, and then placing himself in a position to learn all there was to be known about it.

I have seen boys swayed by \$20.00 a month from a position in a great industry, with a successful and growing concern, to a job in a field of small promise with a retrogressive company. I recall many years ago receiving a telegram from one of our bright young men, telling me he had been offered \$50.00 a month more than he was getting, to take a clerical position in a large corporation. Should he accept it? I answered that if his vision of the future and his judgment indicated that it was wise for him to make the change, to do so, although I should greatly regret it. He stayed, and since has become an important officer with an income many times that of the head of the company from which he received the offer. He proved by his judgment at that time that he was worthy of greater responsibilities.

Every corporation must establish a policy of repair and maintenance of equipment. Efficiency of operation hinges on smooth-running and dependable machin-

ery. This principle is equally important in this individual corporation.

Andrew Carnegie, when asked what was the one most important requisite of success, said, "A good stomach." Yet you will observe, when you begin to handle men, that the preservation of good health seems to be their last thought. Many men and women make no appraisal of this all-important and priceless asset and utterly neglect to preserve it.

Moderation in every activity of life—even work—and regular hours, frequently are the subject of ridicule and derision. But, just as in training for an athletic contest, they are necessary to business success. A corporation that overworks or abuses its personnel or its machinery piles up liabilities that must be met at a later date.

Perhaps no problem of the individual policy committee is more perplexing than that which has to do with the apportioning of his time and energy between business and rest and recreation. I have seen so many tragic endings of brilliant men at forty or fifty years of age, because they had failed to attain that happy and elusive balance between these three all-important activities.

It is obvious that avocations and distractions are essential. Begin them as early as you can, and pursue them with a degree of moderation that will not permit them to interfere with your main effort. They can be great time-wasters if not carefully controlled.

As you have already observed, it is quite impossible adequately to discuss all the phases of this subject in the time allotted. In consequence, I am touching on only a few of the seemingly most important.

So, in closing, I will call your attention to only one other important duty of this ever busy policy committee. The spirit of a corporation may make or break it. If it is optimistic, enthusiastic, and discloses mutual trust and cooperation, it overcomes seemingly impossible handicaps. If it is doubting, uncertain, and harbors jealousies and internal friction, it usually fails. And how true this is of the individual.

I once asked one of our great professional golfers what in his opinion was the first rule to observe in mastering the game. He replied, "Relax and have confidence."

So it is in this game of life—and it must be played as a game. If you do not approach business every morning with the same enthusiasm as you would a game of golf or tennis; if you do not get the same thrill out of doing a good job as you do out of a good stroke, you are not carrying the spirit of happiness and success. The sensation that you have done something better than the other fellow, whether it brings financial gain or not, is undoubtedly the most satisfactory reward that one gets in life. And this confidence, which is so necessary to any competition, comes from a faith that employment of the right principles must win success. A proper perspective is attained only when the philosophy of life is right.

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*Be prepared for the first as
well as the last cold morning.*



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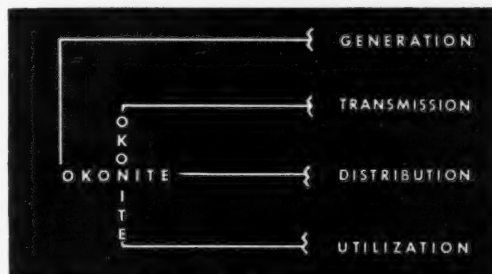
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STRESS AND STRAIN

It's old stuff for freshmen to get in the wrong class by mistake, but when a professor does it it's news. The other day Asst. Prof. Lawrence walked into what he thought was a freshman surveying class, brought out a transit, and began to explain the adjustments of the instrument to the class. Asst. Prof. Lawrence was surprised, not to mention embarrassed when Professor O'Rourke entered a few minutes later to teach the same class of juniors stress analysis.

And then there was the sophomore in Materials class who thought dressed lumber meant Charlie McCarthy.

A railroad was being sued for negligence in an crossing accident, and the principal witness, an aged Negro who guarded the crossing on the night of the accident, was undergoing cross-examination.

"Are you quite positive you had a red lantern on the night in question?" queried the prosecutor.

"Yas suh."

"Did you swing it back and forth?"

"Yas suh."

"How many times?"

"'Bout fifteen er twenty times, suh."

"All right, witness dismissed."

After the trial the railroad's lawyer was congratulating the watchman for his steadiness on the stand.

"But he sho had me scared once," said Rastus.

"When was that," said the lawyer.

"I thought he was gonna ask me was the lantern lit."

A married man returned home one night, at a late hour and finding difficulty with his equilibrium made considerable noise in the hallway. Suddenly there was a sound of crashing glass which awakened his wife.

"John," she called, "what's the matter?"

From downstairs came a low mumble, "I'll teach those goldfish to snap at me."

—Kreolite News

Last night I looked upon the stair;
I saw a man who wasn't there.
He wasn't there again today;
My God, I wish he'd go away!

Waiter: Would you like to drink Canada Dry?

Cornell Student: Yeah, but I'm only here for the weekend.

Does the moon effect the tide?

No, only the untied!

Somebody smashed that store window and took a watch.

Did they get away with it?

No, the tightwads came back for the brick.

1st. pre-med: "Going to the appendicitis lecture?"

2nd. pre-med: "No, I'm tired of organ recitals."

It seems strange when you consider that once a man would put powder in his gun and go hunting for deer, but now the deer puts powder on her nose and goes hunting for men.

Teacher: "Why aren't you writing?"

Pupil: "I ain't got no pen."

T: "Where's your grammar?"

P: "She's dead."

Dramatics professor: "What is an actor?"

Student: "An actor is a person who can go to the side of the stage, gaze into the wings filled with dirty scenery, props, other actors, stage hands, and the electrician, and say, 'What a lovely view you have from this window'."

"Will you take my sister to the houseparty?"

"Is she good looking?"

"I'll pay half your expenses".

"Sorry, I gotta date."

Two girls were hashing out the problem of men. "Which would you want most in a husband, brains, wealth, or appearance?" asked one.

"Appearance", was the quick reply, "and the sooner the better."

"Did you know that Jane is getting married?"

Is that so, who's the lucky man?"

Her father".

"He's suffering from T.B."

What do you mean T.B.?"

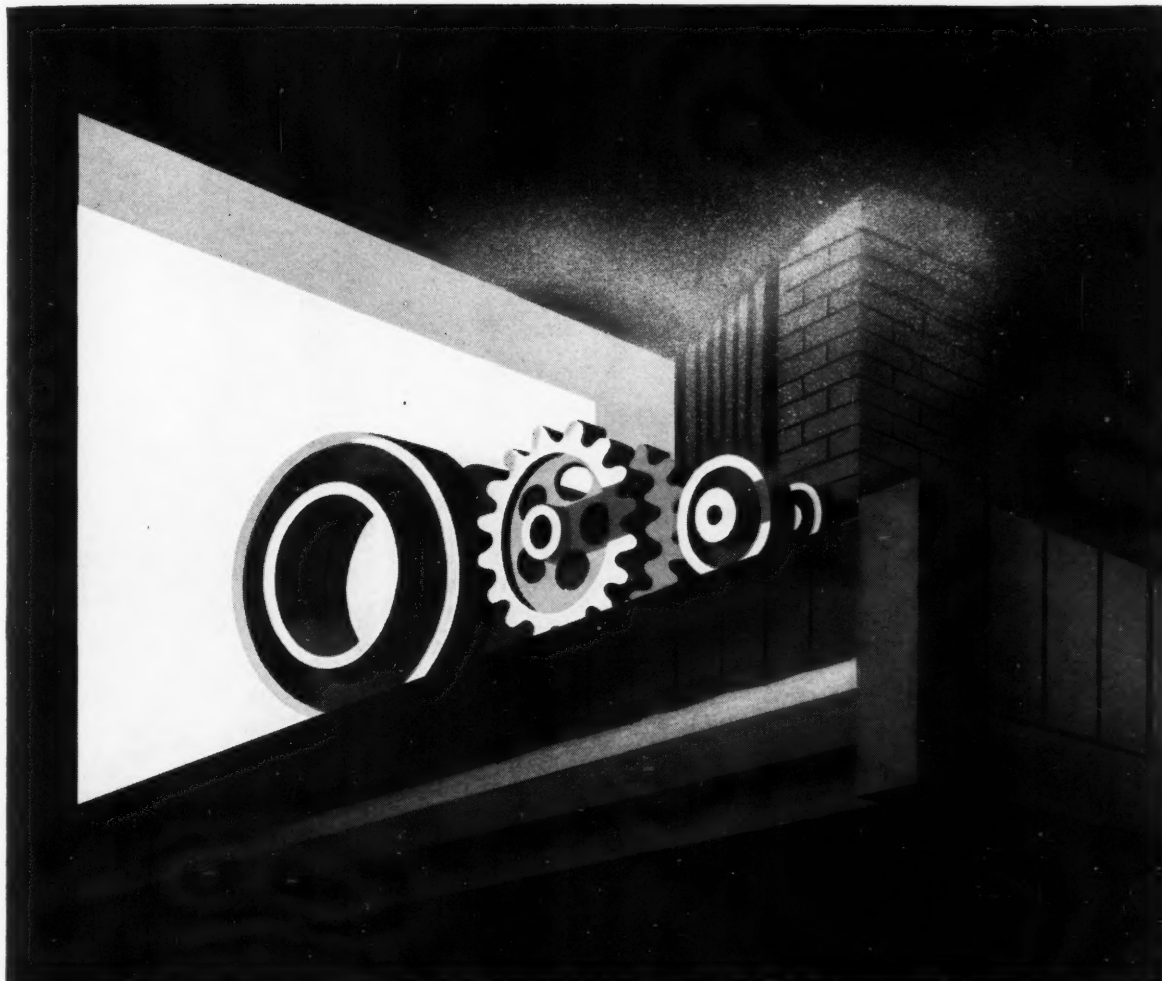
Too many beers."

Were you at the ball last night?

I was so on it that I never got to it!

I'm just crazy to go to the Sigma Nu dance.

I'll say you are.



MINIMIZING MASS EFFECT

MANY manufacturers in different lines are profiting from the versatility of Moly steels. In one instance a single cast steel (Chrome-Manganese-Moly) is used for a variety of applications — to the benefit of both manufacturer and users.

Not only do the sizes vary, but the sections and shapes as well. The Moly steel has simplified both foundry production and heat treating problems. It

also makes it easier to produce consistent results when simultaneously heat treating a miscellaneous group of castings.

Further field evidences of the practicability of "One steel—many parts" is available. And our book, "*Molybdenum in Steel*," is literally based on experience, not just theory. Climax Molybdenum Company, 500 Fifth Avenue, New York.

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G-E Campus News

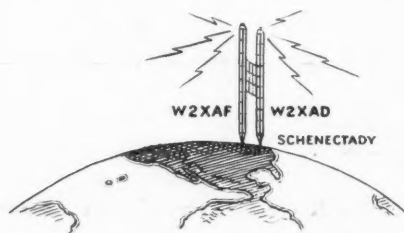


"MIDGET SUN"

FOR years Old Sol has had things pretty much his own way—causing sunburn, having sunspots, and wandering periodically north and south of the equator.

Now a young upstart about the size of a cigarette has been announced by General Electric. It is the new 1000-watt mercury lamp, which, even though many million times smaller than the sun, has one fifth the brilliancy of Old Sol's surface.

Source of the brilliant light is the lamp's highly concentrated arc—12 times more brilliant than the incandescent filament of a 1000-watt standard projection lamp. Laboratory tests show that the "upstart" will be of great value in searchlights, photoengraving, blueprinting, photo-enlarging, and as an aid to medical science.



"AMERICA CALLING . . ."

NEWS reports broadcast via short-wave radio from America told of troop movements in Spain; picked up in Barcelona, they aided forty refugees in escaping a war-torn area. An appeal for emergency contributions to a Red Cross flood-relief fund was heard in South America; Venezuelan oil-field workers answered with a donation. Behind these events and others of front-page news were the two powerful short-wave stations of General Electric—W2XAD, and W2XAF, in Schenectady, New York. Since they first took the air, 12 years ago, the stations have figured in events of all kinds, have broadcast their

programs to all parts of the earth. One of their weekly variety programs is an institution in South America. World Series baseball games have been heard in India and Arabia. The news reports of these stations are heard everywhere.

The steady stream of cards and letters from all over the world asking for information on the programs and congratulating the stations on their service is indicative of the good will that the stations are helping to promote.

The 150-hour-a-week operating schedule, headed by Eugene Darlington, Oregon State '28, ex-Test man, now features broadcasts of all types, on four different frequencies, in six languages—English, Spanish, Portuguese, French, Italian, German.



"FROM AMERICA, FROM INDIA, FROM ENGLAND . . ."

SCANNING the recent rolls of young men on Test with General Electric gives the impression of reading membership lists in an "International House" at some large university. For, intermingled with graduates of engineering schools all over the United States are, for example, Cariapa from Kashmir, in India; Bambery, from "way down under" in New Zealand; Gurewitsch, of Roumania; and Chia-Hsu Hou, of China.

But predominating in the picture are picked men from American colleges and universities. Selecting names at random from the various Tests inevitably shows student engineers from widely separated parts of the country working side by side. Miller of Arizona U. and Olsen of Brooklyn Tech. worked together on motor and generator tests. Schmid of Wisconsin ran turbine tests with Norris of Texas Tech. Testing induction motors were Loew of Washington and Owens of Union College.

General Electric's executives look upon this Test training as more than a graduate course in engineering—it is a carefully formulated plan of training young engineers for leadership in industry.

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